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aurantiacis areolata; perich. similia; omnia nervo crasso callosso in acumine evanido; theca breviter exserta e basi brevi urniformi-oblonga octies plicata fusca tenuis, operculo e basi cupulata recte aciculari; calyptra pilis elongatis strictis reticulatis apice simplicibus subulatis glabris hirtissima; peristomii externi dentes ad cap ulam reflexi albidi 16 per paria aggregati lanceolati breviter subulati linea longitudinali tenui exarati obscuri, interni 8 robusti latiusculi linea longitudinali exarati latere sinuoso-crenati obscuri crassi.

Patria, Oregon, Winchester Bay, et Coos River, ad arbores in societate *Neckera Douglasii*, Hook., October, 1881, c. fruct. evacuatis: C. G. Pringle, in herb. E. A. Rau.

Ex habitu ad congeneres *Orthotheræ*, *Syrrhopodontium* c. gr. ad *O. lycopodioidem* accedens. Species distinctissima pulcherrima excelsa.

Pinus pungens in New Jersey.

On the 15th of May, Rev. R. E. Schuh and myself found *Pinus pungens*, Michx., one mile east of Sergeantsville, Delaware Township, Hunterdon County. About one acre is densely covered with it, and an equal area with scattering trees. The location is a warm, sunny one, on a south slope, protected from the north and west winds by surrounding woods.

On inquiry I learn that nearly a half century since the site now occupied by it was a cultivated field, in the middle of which a small pine was for some reason allowed to grow. Subsequently, however, the ground being no longer tilled, there grew up a dense undergrowth, among which was a large number of small pines. These grew so luxuriantly as to choke out the other vegetation. The parent tree still stands larger than any of its offspring, measuring 30 inches in diameter near the ground, and attaining a height of 40 feet.

Whence came this tree? It cannot be traced to cultivation. In fact I am told that repeated trials have been made to transplant the younger trees for ornamental purposes, but with uniformly poor results. The other species of *Pinus* growing in this section are *Pinus rigida*, Muller, *P. inops.*, Art., *P. Strobus*, L. I think it probable that the seed has been carried here, on snow crusts, perhaps, by the wind and, finding a favorable nidus, has sprung up.

Pinus pungens has a varying appearance depending on density of growth. Where the trees grow thickly they are tall, straight, and slender, having but few living branches, except near the top. Quite the contrary when they grow far apart. The trees then present a straggling look, drooping branches loaded with cones, running out 15 feet or more, the extremities of the lower ones often touching the ground.

The cones are quite distinctive. They are ovate-conical, fascicled around the branches in clusters of three to seven, 3½ to 4 inches long, armed with stout spines, which are, from the middle of the cone upward, *incurved*, and from the middle downward, *recurved.* The leaves are stout, 2 to 3 inches long, sometimes shorter, with short sheaths on mature foliage. The sheaths, however, on young leaves about ½ inch long. G. N. BEST.

ROSEMONT, N. J., June 14th, 1886.

Notes on Starch in the Chestnut Wood.

I wish to add a note to my communication of last month in regard to the starch grains in chestnut wood.

June 1st I cut a branch from a tree on the Boston and Albany Railroad, near the Massachusetts and New York State line, at an elevation of 950 feet above the sea. The aments of the chestnut trees then were just appearing; the leaves gave to the trees a dense foliage.

Only a few of the upright starch-carrying cells in the fifth and sixth rings from the bark still contained starch grains. The medullary rays in the alburnum and in the bark did not give a trace, nor were any found in any of the cells of the bark. In chestnut trees at less elevations probably this change had taken place before this date, as the aments on the trees in the eastern portion of the State were much further advanced. The only timber of chestnut generally seen now in Massachusetts is of second growth, and along the line of the railroad mentioned I did not see any above 1,000 feet of elevation.

So little is known in regard to the periods when different trees store starch and then transform it, that I trust many other observers in different sections of the country will give the result of investigations in this respect. It is a matter not only of great scientific